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Effects on Smoking Cessation: Naltrexone Combined with a Cognitive Behavioral Treatment Based on the Community Reinforcement Approach

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A promising option in substance abuse treatment is the Community Reinforcement Approach (CRA). The opioid antagonist naltrexone (NTX) may work in combination with nicotine replacement therapy (NRT) to block the effects of smoking stimuli in abstinent smokers. Effects of lower doses than 50 mg/dd. have not been reported. A study was conducted in Amsterdam in 2000/2001 with the objective to explore the effects of the combination NTX (25/50-mg dd.), NRT, and CRA in terms of craving and abstinence. In a randomized open label, 2 × 2 between subjects design, 25 recovered spontaneous pneumothorax (SP) participants received 8 weeks of treatment. Due to side effects, only 3 participants were compliant in the 50-mg NTX condition. Craving significantly declined between each measurement and there was a significant interaction between decline in craving and craving measured at baseline. The abstinence rate in the CRA group was nearly double that in the non-psychosocial therapy group (46% vs. 25%; NS) at 3 months follow-up after treatment.

Keywords naltrexone; nicotine replacement therapy (NRT); community reinforcement approach (CRA); smoking; craving; spontaneous pneumothorax (SP)

Introduction

Naltrexone (NTX), which is traditionally used to prevent alcohol and opioid abuse, recently emerged in the tobacco literature (Krishnan-Sarin et al., 2003). It is suggested that there may

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be a link between opiates and nicotine (Krishnan-Sarin *et al.*, 1999). Under controlled laboratory conditions, where habitual smokers smoked cigarettes, an increase in beta-endorphin levels co-occurred with increases in plasma nicotine concentrations (Pomerleau *et al.*, 1983). It is conceivable that nicotine stimulates endogenous opioid release, which provides positive reinforcement for smoking. Subsequently, an opioid antagonist, such as NTX, may (partially) block these rewarding effects. In a study by Sutherland *et al.* (1995), it was suggested that NTX reduced the perceived difficulty of abstaining during 24-hr cigarette withdrawal. Some additional support for the use of NTX came from a study by King and Meyer (2000), who demonstrated that NTX in controlled conditions significantly reduced the total number of cigarettes smoked.

In a study conducted by Wewers *et al.* (1998) it was demonstrated that plasma nicotine levels, number of cigarettes smoked daily, and self-reported satisfaction with smoking were significantly lower among those treated with NTX. A review by David *et al.* (2002), however, showed that short-term trials of NTX yielded conflicting results with regard to effects on ad libitum smoking, withdrawal symptoms, mood states, subjective and physiological responses to smoking. In addition, several placebo-controlled studies ascertained no support for NTX on a variety of biochemical and behavioral measures of nicotine intake or even produced negative effects on mood (Brauer *et al.*, 1999; Wong *et al.*, 1999; Sutherland *et al.*, 1995). Thus, at best, it remains unclear whether NTX helps smokers quit (David *et al.*, 2002). However, to our knowledge, all NTX studies on smoking cessation examined the effects of the 50-mg daily dose. Only one study could be identified as using 100 mg dd. of NTX (Sutherland *et al.*, 1995). This study demonstrated no dose response effect between 50 and 100 mg NTX per day and no other studies could be identified with lower dosages.

In a review, Silagy *et al.* (2002) concluded that all forms of Nicotine Replacement Therapy (NRT) are effective as part of a strategy to promote smoking cessation. Consequently, it has been demonstrated that the concurrent use of NTX and NRT is beneficial for smoking cessation (Hutchison *et al.*, 1999; Krishnan-Sarin *et al.*, 2003), because it may ameliorate withdrawal symptoms, dysphoria, and sedation (Hutchison *et al.*, 1999). Additionally, it is suggested that NTX augments the efficacy of NRT in terms of craving (Hutchison *et al.*, 1999; Krishnan-Sarin *et al.*, 2003). Also, the single use of NTX may reduce craving (Houtsmuller *et al.*, 1997; King and Meyer, 2000). Craving is thought to play an important role in maintaining regular smoking patterns in smokers and in leading to relapse in smokers attempting to quit (Houtsmuller and Stitzer, 1999). Although still not understood completely, craving is mainly referred to as a compulsory desire to use (*c.f.* Robinson and Berridge, 1993, 2001). In addition, craving is considered to be a complex, dynamic, multidimensional phenomenon (Barabási, 2003; Buscema, 1998), consisting of biological, psychological, and social components.

With respect to psychosocial treatments, the Community Reinforcement Approach (CRA) is a promising option, with evidence in favor of using CRA in alcohol, cocaine, and opioid treatment (Roozen *et al.*, 2004). CRA has also been mentioned in relation to smoking cessation (Poldrugo *et al.*, 2002). CRA is a comprehensive cognitive behavioral oriented treatment package that focuses on environment (community)-organism interactions to rearrange a substance abusing lifestyle (Meyers and Smith, 1995). It is based on the view that substance-related reinforcers and the relative lack of alternative reinforcers unrelated to substance abuse maintain dependence. Development of alternative rewarding activities that are incompatible with substance use is essential to initiate and maintain abstinence (Schottenfeld, *et al.*, 2000). CRA integrates concomitant administration of pharmacological agents with psychosocial aspects. It seems likely that CRA, as a novel multi-faceted approach, is appropriate to foster abstinence in smoking cessation therapy. In the present

study this expectation was addressed. The objective of this study was to explore 1) the effects of CRA in terms of abstinence, therapy retention, and treatment satisfaction, and 2) a dose response effect of NTX in terms of craving and abstinence.

Method

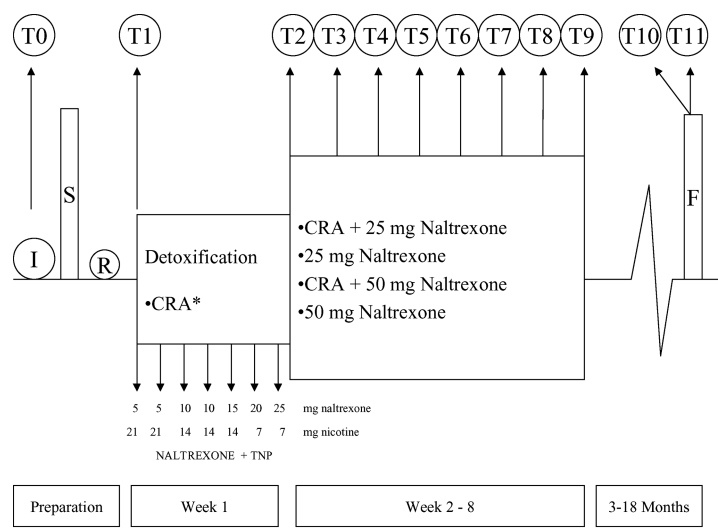
Participants

Twenty-five participants were recruited from a database of 181 recovered spontaneous pneumothorax (SP) patients treated at the VU medical center (22 participants) and Slotervaart hospital (3 participants) in Amsterdam, the Netherlands. SP is considered to be a smoking related disease, because tobacco use enhances the chance of having peripheral airway inflammation (Snider, 1992), which has a role in the pathogenesis of idiopathic SP (Schramel et al., 1997; Smit, 1999). The chances of contracting SP is 8-22 fold higher when people smoke (Bense et al., 1987) and smoking cessation reduces this chance (Sadikot et al., 1997). All participants were contacted by telephone to enquire if they wanted to participate. Participants were included if they were between the ages of 18 and 65, smoked at least 15 cigarettes daily for a minimum of 5 years, and expressed the wish to stop smoking. Participants should have performed at least three unsuccessful attempts to stop smoking in the past 5 years. They should not simultaneously participate in another smoking cessation treatment and they should have the collaboration of a non-smoking concerned significant other to assist the participant in his attempt to stop smoking. Participants were excluded if they were dependent on opioids, cannabis, or alcohol. All participants gave written informed consent.

Procedure

The treatment (T1-T9) was provided for 8 weeks (Fig. 1). Prior to the treatment, participants and their significant other (i.e., supportive partner or friend) were invited for an information visit (T0) to collect socio-demographic, medical history data (Table 1), and to explain the rationale and procedure. Participants were consecutively randomized by using a block design and were allocated to four treatment groups (Fig. 1). In the week following the first treatment visit (T1) the administration of NTX (Antaxone[®]), which was administered in oral solution, was gradually increased from 5 mg to 25 mg. NRT (Nicotinell[®]) was tapered from 21 mg/24 hr to 7 mg/ 24 hr (see Fig. 1). The rationale for this non-standard use of the NRT taper procedure was to ameliorate possible withdrawal symptoms and to reduce possible side effects of the NTX induction. At T2 the NTX dosages were in alignment with the randomization procedure: 25 mg NTX, 25 mg NTX + CRA therapy, 50 mg NTX, and 50 mg NTX + CRA therapy. The timing of the clinical and laboratory assessments is summarized in Table 2. At the weekly visits, data was collected and the NTX was administered (HJW/SvB). The participants allocated to the CRA condition received concomitant CRA treatment at visits 1, 2, 3, 5, and 7. The non-treatment group received no additional treatment. Each participant was seen at the same time of day at all visits. A follow-up took place 3 months after the treatment visits, and a second follow-up was conducted 1¹/₂ years later by telephone to assess continuous abstinence. Only participants who had been abstinent at 3 months were contacted for a second follow-up. Drop-outs were considered as smokers.

CRA. The cognitive behavioral treatment was based on CRA (Meyers and Smith, 1995) to give support during smoking cessation, and was protocol driven (Roozen and Kerkhof,



* Only for participants allocated to the CRA condition.

Figure 1. Treatment plan and flowchart of the visits (T0 to T10). T10 and T11 are follow-up contacts. T11 was only a telephone contact. I = Intake, S = Selection, R = Randomization, and F = Follow-up. The detoxification encompassed a gradual increase of NTX from 5 mg (day 1 & 2), 10 mg (day 3 & 4), 15 mg (day 5), 20 mg (day 6) to 25 mg (day 7). The NRT administration was tapered down by applying 21 mg/24 hr (day 1 & 2), 14 mg/24 hr (day 2–5) and 7 mg/ 24 hr (day 6 & 7). For participants allocated to both 50 mg NTX conditions, NTX was further increased from 25 mg to 50 mg at T2.

2000). Masters-level psychology students conducted this therapy, which took five sessions. Treatment integrity was guided by a 3-day training course and weekly individual supervision (HGR). Sessions focused on motivation, adherence to treatment and NTX administration, skill training, functional analysis, and creating a monitoring system. The “Stimulus Control” procedure (Azrin et al., 1994) was employed to eliminate high-risk social situations that are precursors to smoking and to increase the amount of time spent engaging in smoking-incompatible activities.

Objective and Subjective Measures. An overview of the measures used is provided in Table 3. The success of cessation is measured by abstinence according to self-report. Of the collected urine samples, the cotinine values were analyzed to verify self-reported smoking status.

Design and Statistical Analysis

A 2 × 2 factorial between-subjects design was utilized. The significance level was set at $p < 0.05$. Descriptive statistics, paired sample T-test, Spearman’s rho, and one-way ANOVA’s were used to compare sample characteristics. Logit analyses were conducted to analyze main effects or significant interactions between the four conditions. A General Linear Model (GLM) repeated measures analysis was conducted, with as between-subjects factors the NTX doses (25 mg vs. 50 mg) and CRA therapy (therapy vs. none), and as the within-subjects factor the 10 VAS measurements. The baseline VAS was used as

Table 1
Sample characteristics at baseline

Variable	25 mg	25 mg & CRA	50 mg	50 mg & CRA	Total	p
No. of cases	6	6	6	7	25	NS
% Male	50	83	67	86	72	NS
% Married/living together	50	50	33	86	56	NS
% Min. secondary education	83	100	100	83	92	NS
Mean age (SD)	39.83 (4.99)	41.00 (3.7)	43.67 (6.06)	46.43 (3.98)	42.88 (2.27)	NS
Mean no. cigs/day daily (SD)	21.83 (2.99)	21.67 (2.11)	25.60 (2.11)	20.29 (1.97)	22.13 (1.34)	NS
Mean no. of quitting attempts (SD)	2.16 (0.87)	2.67 (0.67)	1.40 (0.60)	2.17 (0.52)	2.29 (0.33)	NS
Mean score (SD) on perceived health status	7.80 (0.84)	7.33 (0.52)	7.80 (0.84)	6.86 (1.21)	7.39 (0.94)	NS
Mean years recovered from SP (SD)	8.83 (3.21)	12.33 (3.49)	8.50 (2.90)	5.57 (2.22)	8.70 (1.50)	NS
Mean SCL-90 score (SD)	120.17 (6.12)	114.00 (7.44)	126.00 (5.91)	135.57 (18.55)	124.40 (5.76)	NS
Mean no. of concerned others (SD)	8.00 (4.04)	5.83 (1.96)	6.50 (1.28)	5.00 (1.17)	6.28 (1.11)	NS
Mean alcohol units/day (SD)	1.33 (0.49)	1.33 (0.42)	2.20 (0.92)	2.14 (0.77)	1.75 (0.32)	NS

Note: The type of socio-demographic areas covered items such as age, sex, education level, marital status, and number of concerned others. A visual analogue scale (VAS) ranging from 1 (poor health) to 10 (excellent health) assessed the perceived (subjective) health status. Displayed are numbers, percentages, mean scores, standard deviation, and significant-levels ($p < 0.05$).

Table 2
Flow chart of study assessments points

Clinical measures/ Intervention	T0	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11
Time (hour)*	1.5	1.0	0.5	0.25	0.5	0.25	0.25	0.25	0.25	1.5	0.5	0.1
Soc. Demographic data	♦											
VAS health status	♦											
Physical examination	♦											
Urine sample	♦	♦			♦					♦	♦	
Self-report smoking	♦	♦			♦					♦	♦	♦
VAS (craving)	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	
VAS (taste)	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	
VAS (CRA)										♦		
CSQ-8										♦		
SCL-90	♦									♦		
CRA**		♦	♦	♦		♦		♦				

Notes: *Average time needed to assess data, administer medication, provide instruction, information, and advice, document side effects, etc.

**Only for participants allocated to the CRA condition. Each CRA treatment session lasted about 60 minutes.

covariate. Missing data analysis, considering the VAS, were conducted by the expectation maximization (EM)-algorithm. After this, a T-test was used to analyze if the craving reduced linearly or remained constant. The tests of the within subjects effects were analyzed using the univariate approach with Huynh-Feldt correction.

Results

General Outcomes

Sociodemographic characteristics, scores on the SCL-90, and alcohol use were not statistically different between the four groups at baseline (Table 1). The scores on the SCL-90 at baseline and at the end of treatment did not differ significantly, except for a decrease in depression ($p = 0.026$, Cohen's $d = 0.35$; Table 4). One week of nicotine replacement was sufficient to ameliorate withdrawal symptoms, but participants preferred a longer use of NRT. Eight participants withdrew from the treatment because of self-reported side effects induced by NTX (2) or because of relapse (6). The overall dropout was 32%.

In general, most participants tolerated NTX well, but 73% found the taste of the NTX fluid unpleasant. The 50-mg doses NTX-treated participants (13) experienced more side effects compared to the 25-mg doses NTX-treated participants. Reported side effects were headache, dizziness, nausea, insomnia, sleepiness, and decrease of taste. Due to this, in the 50-mg NTX condition, five participants halved the dose to 25 mg. Three participants refused to continue with NTX because of side effects. As previously reported, two participants

Table 3
Objective and subjective measures

Measure	Instrument	Objective	Number of items	Average time (min)	Type	Additional information
Objective:	Urine collection	Cotinine, a primary metabolite of nicotine with a half-life of 15–20 hours, has been used as a biomarker to uncover those who continue to smoke and confirmation of cessation in treatment studies (Emmet, 1993; Bergen and Caporaso, 1999).	10		The samples were analyzed in the clinical chemical laboratory of the VU Hospital with the Proclaim Cotinin Enzymimmunoassay kit (Rolf Greiner Biochemical, Kat.-Nr.: 18251 and calibrator kit Kat.-Nr.: 150404) on an ELAN-Analyzer (Merek). The intra- and interassay percent CV for cotinine were 8.5 and 9.3 respectively.	The limit of detection of this method is 40 ng/ml of cotinine. Up to 120 ng/ml of cotinine was considered as none or passive smoking, above this level was considered as evidence of smoking.* The cut-off levels were determined on base of a sample of smoking and non-smoking participants in a validation research.
Type/Instruction						
Subjective: VAS (Craving)		Measures the subjective state of craving	1	1	The 100 mm line, ranging from “not at all” to “extremely,” was accompanied by the instruction: “Please put a mark on the line which represents best your urge to smoke.”	
VAS (Taste)		Measures the taste of the cigarette if the participant had smoked	1	1	The 100 mm line ranged from “good” to “bad,” and was accompanied by the instruction: “If you have smoked, please put a mark on the line how the cigarette tasted.”	

(Continued on next page)

Table 3
Objective and subjective measures (*Continued*)

Measure	Instrument	Objective	Number of items	Average time (min)	Type/Instruction	Additional information
Subjective:	SCL-90	Designed to detect nine major dimensions of psychopathology including anxiety, agoraphobia, depression, somatization, insufficiency, interpersonal sensitivity, hostility, insomnia, and psychoticism.	90	20	Self-report	The theoretical factor structure of the SCL-90 was validated by confirmatory and exploratory factor analyses of ratings from a heterogeneous sample of psychiatric outpatients (Derogatis and Cleary, 1977). The grand mean of all 90 items primarily indicate general psychiatric distress, which may provide information consistent with the empirical factor structure of the SCL-90 (Zack, Toneatto and Streiner, 1998). The CSQ-8 has been used in a variety of treatment settings. The questionnaire has been frequently recommended as a reliable measure of global satisfaction (Larsen et al., 1979).
Subjective:	CSQ-8	The CSQ-8 consists of eight four-point questions, to measure global satisfaction.	8	5	Self-report	
Subjective:	VAS (CRA)	Measures satisfaction with the contents and method of the CRA therapy	1	1	The 100 mm line ranged from “good” to “bad,” and was accompanied by the instruction: “Please put a mark on the line how satisfied you are with the CRA treatment.”	

Note: *Data covering the cotinine values were categorized in three groups: up to 120 ng/ml of cotinine was considered as none or passive smoking, 120–1600 ng/ml of cotinine was considered as smoking less than 10 cigarettes daily, 1600–2000 ng/ml of cotinine was regarded as smoking more than 10 and less than 20 cigarettes daily. Over 2000 ng/ml was considered as more than 20 cigarettes daily smoked.

Table 4
Scores on the SCL-90 at baseline and at the end of treatment

SUBSCALE SCL-90	Baseline (<i>n</i> = 14)	End of treatment (<i>n</i> = 14)	<i>p</i>
Anxiety	12.79 (2.29)	11.93 (1.94)	NS
Agoraphobia	8.00 (1.24)	7.57 (0.94)	NS
Depression	21.43 (3.90)	20.07 (3.97)	<.05
Som. complaints	16.43 (2.88)	15.50 (3.08)	NS
Insufficiency	12.43 (2.71)	12.07 (2.73)	NS
Sensitivity	22.79 (3.87)	22.29 (5.31)	NS
Hostility	6.86 (.77)	6.79 (.80)	NS
Insomnia	5.21 (1.67)	4.79 (1.81)	NS
Psychotism	11.07 (1.86)	10.50 (1.51)	NS
Psneur	117.00 (15.61)	111.50 (16.68)	NS

Note: Displayed are numbers, mean scores, standard deviations, and significant-levels ($p < 0.05$) for sub scales and total scores (Psneur) of the SCL-90.

allocated to the 50-mg condition dropped out. This left only three participants to be compliant in the 50-mg condition. In contrast, only one participant allocated to the 25-mg condition decreased the daily dose NTX to 12.5 mg. An intention to treat analysis showed no significant difference between the NTX conditions. As a result, the two NTX conditions were collapsed.

Treatment Attendance, Satisfaction and Evaluation

CRA participants did attend a mean number of 4.5 (SD = 1.2, range = 1–5) sessions. Participants who received CRA were, in general, satisfied with the contents and method of the CRA therapy (Mean = 7.3, SD = 0.90, range = 6.0–9.3). The satisfaction about the received treatment in general, measured with the CSQ-8, was high (Mean = 25.8, SD = 4.0, range = 22–32).

Abstinence and Treatment

The correlation between self-report daily smoked cigarettes and the cotinine values (T0, T1, T4, T9, T10) is 0.675 ($p < 0.01$), with respect to three categories of smokers (Table 3). When the categories were collapsed into the dichotomous measure abstinent or smoking, the correlation between the cotinine values and self-report is perfect (1.00, $p < 0.01$). At 3 months after the end of treatment (T10) the abstinence rate in the CRA group was higher than in the non-therapy group (46% vs. 25%), but this did not differ significantly. At the 1¹/₂-year follow-up (T11), participants were asked by telephone: "Do you smoke?" One hundred percent of the participants gave a self-report. The smoking abstinence rate for the non-CRA condition was 17%. In the CRA therapy group the abstinence rate was 31% (NS). The overall abstinence rate after 1¹/₂ years was 24%. Sixty-seven percent of the participants who were abstinent after 3 months remained abstinent thereafter.

Craving Outcomes

Craving significantly declined each weekly measurement with a regression coefficient of 0.28 points (SD = 0.24) on the VAS scale of 0–10 ($t = 5.3$, $df = 20$, $p < 0.001$; Fig. 2). There is a significant interaction ($F = 2.47$, $df = 6.5$, and 104.2, $p = 0.025$) between the

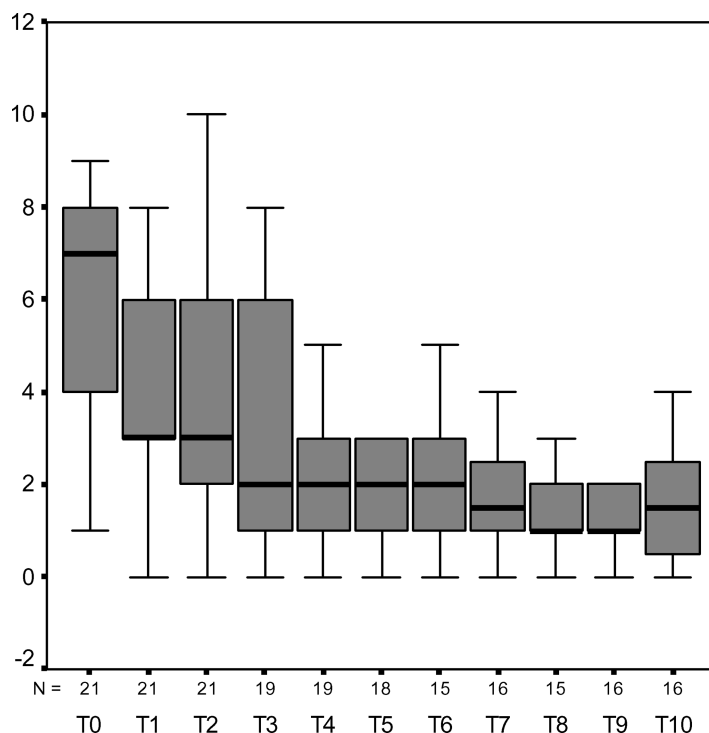


Figure 2. Box plot representing the craving (VAS) distribution (T0–T10). Outliers and extremes are suppressed. Black line in the box represents the median value. Horizontal lines under and above the box (whiskers) indicate the range of values (excluding outliers and extremes). Length of box indicates the interquartile range (IQR), which covers the range between the 25th and 75th quartile. The IQR is an estimate of the spread of the data.

sequential time points and baseline craving. The interaction effect indicates that the higher the participants' baseline craving, the stronger the decrease in craving. The correlation between baseline level of craving and the slope of craving is -0.53 ($p = 0.014$). The VAS measures pertaining to the taste of the cigarette, if the participant had smoked, showed neither interaction effects nor a significant trend.

Discussion

This study yielded a high agreement between biochemical cotinine values and self-reported tobacco consumption. Consequently, the abstinence rates can be considered as valid. An effect of CRA therapy is suggested with nearly double the amount of abstinence. However, the difference is not significant. This lack of a significant effect may be due to the small study sample. To calculate the number of participants we would have needed to find a statistically significant effect. We merged the data (proportions of abstinence at 3 months; 25% vs. 46%, power .8, and alpha .05) in an Arcsin formula (Lemeshow et al., 1990; Lwanga and Lemeshow, 1991). This resulted in 63 participants in each group (one-sided). Another concern is the relatively large amount of time consumed to collect data, provide information, and give instructions by a researcher. This considerable amount of attention may have diluted the CRA effect.

Due to side effects, a comparison between the 25-mg and the 50-mg NTX doses was not meaningful. Noncompliance with regard to doses contaminated the conditions, which impaired the randomization procedure. More than 50% of the participants in the 50-mg NTX condition reduced the doses to 25 mg or to none. Participants were generally satisfied with the treatment and NTX, but still suffered side effects, even with 25-mg doses. Side effects after NTX induction have also previously been reported (Sutherland et al., 1995; Brauer et al., 1999). However, the severity of the side effect has not caused such a high noncompliance in a 50-mg condition as in previous studies. Seventy-three percent of the participants rated the taste of the NTX oral solution (10-ml) as unpleasant, which might have been caused by relative large doses of concomitant additives such as saccharine (1 mg) and sorbitol (70%).

There was a significant decline in craving and a significant interaction between baseline craving and decline in craving. Methodological limitations preclude us drawing firm conclusions regarding the effect of NTX on craving, but the findings do suggest that additional research on NTX related to craving is warranted, as analogue results previously have been reported (King and Meyer, 2000).

The protocol-driven cognitive behavioral treatment program based on CRA is rather extensive in comparison to many regular smoking cessation programs (especially self-help), which could compromise participants' satisfaction. Results indicate, however, that participants were satisfied with the CRA program and found the frequency and the duration of the treatment appropriate.

With regard to methodological limitations, non-blinding of the conditions, small sample size, and the necessity for collapsing the two NTX dose conditions, we were limited to ascertain an effect between 25-mg and 50-mg NTX condition. Further double blind, (placebo) controlled research in a larger population is needed to establish the effects of a low dose of NTX and/or NRT on smoking behavior. We recommend in further research the administration of NTX in pill form. CRA constitutes an innovative approach in smoking cessation treatment. The results in this study support the call for further research.

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RESUME

L'approche du renforcement communautaire (Community Reinforcement Approach - CRA) est une solution promettante pour le traitement des toxicomanes. L'antagoniste opiacé

Naltrexone (NTX), utilisé en combinaison avec une thérapie de remplacement de la nicotine (Nicotine Replacement Therapy–NRT) pourrait être effectif pour bloquer les stimuli des fumeurs en abstinence. Des effets n’ont pas été enregistrés pour des doses inférieures à 50 mg/j. L’objectif de la présente étude était de comprendre les effets de la combinaison NTX (25/50-mg/j.), NRT et CRA en termes de ‘craving’ et d’abstinence. L’étude a été conduite en l’an 2000/2001, à Amsterdam, aux Pays-Bas. De manière aléatoire, les 25 participants ont reçu un traitement de 8 semaines selon la méthode ‘ 2×2 between subjects’. Du à des effets secondaires, seulement 3 participants ont complété le traitement suivant la méthode prévue. Le ‘craving’ diminuait de manière significative entre chaque contrôle et il y avait une relation significative entre la diminution du ‘craving’ et le niveau de ‘craving’ mesuré initialement. Trois mois après la fin de l’étude, le niveau d’abstinence dans le groupe CRA était plus haut que dans le groupe qui n’avait pas reçu ce traitement (46% vs. 25%; NS).

RESUMEN

La Aproximación de Reforzamiento Comunitario (Community Reinforcement Approach-CRA) compone una de las opciones más prometedoras dentro del tratamiento de las drogodependencias. Un antagonista opiáceo como la Naltrexona (NTX) usado en combinación con una terapia sustitutiva de nicotina (Nicotine Replacement Therapy-NRT) puede ser efectivo para bloquear los efectos de los el deseo de fumar que padecen los fumadores en el periodo de abstinencia. Los efectos de dosis de NTX por debajo de 50 mg/dd no han sido aún investigados. El objetivo de este estudio es investigar si la combinación de NTX (25/50-mg dd.), con una terapia sustitutiva de nicotina y con la CRA es efectiva operacionalizada en términos de “craving” y abstinencia. El estudio se llevo a cabo en los años 2000/2001 en Amsterdam, Holanda. Los 25 participantes recibieron un tratamiento de 8 semanas y fueron asignados de forma random dentro de un diseño 2X2 con un factor intragrupo (random open label within-subjects design). Debido a los efectos secundarios de las dosis de 50 mg de NTX sólo 3 participantes terminaron el tratamiento en esta condición. El “craving” descendió significativamente entre cada medida y hubo una interacción significativa entre el descenso del “craving” y el “craving” registrado en la primera medida. El nivel de abstinencia tres meses después del final del tratamiento fue más alto en el grupo que recibió la CRA que en el grupo que no recibió dicha intervención (46% vs. 25%, NS).

SAMENVATTING

Middels een pilotstudie in Amsterdam in 2000/2001 werd de combinatie Community Reinforcement Approach (CRA), naltrexon (NTX) en een nicotinesubstitutie behandeling onderzocht (NRT). De farmacotherapie werd voornamelijk ingezet om “craving” te verminderen en CRA werd toegepast als terugvalpreventie om het rookgedrag van de deelnemer te veranderen.. NTX werd in de vorm van 2 verschillende doseringen aangeboden om de invloed te onderzoeken op “craving.” NRT werden voor de duur van één week aangeboden en langzaam afgebouwd. Dit om onthoudings klachten te verminderen. In een gerandomiseerd open label (2×2) design werden 25 spontaneous pneumothorax (SP) patiënten behandeld. De 4 groepen waren CRA vs. non-psychosociale therapie. NTX 25 mg/dd vs. NTX 50mg/dd. Door bijwerkingen van NTX waren slechts 3 deelnemers van de 50 mg conditie therapietrouw. Daarom werden de 25 mg en 50 mg conditie geaggregeerd. De

“craving” verminderde voor de gehele groep statistisch significant over de tijd. Bovendien is er een interactie effect tussen baseline “craving” en vermindering van “craving” gemeten over de verschillende tijdsintervallen. Alhoewel niet statistisch significant, een groter aantal patiënten in de CRA conditie waren abstinēt in vergelijking tot de non-therapie groep 3 maanden na het eind van de behandeling (46% vs. 25%).

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Glossary

Community Reinforcement Approach (CRA). A cognitive behavioral oriented treatment package to rearrange a substance abusing lifestyle.

Craving. Considered as a compulsory desire to use substances.

Naltrexone (NTX). An opioid antagonist, blocks intrinsic properties of psychoactive substances that act on the μ , κ , and δ opioid receptor sites.

Nicotine Replacement Therapy (NRT). A therapy wherein Transdermal Nicotine Patches (TNP) are used as a substitute, because nicotine is readily absorbed through the skin. The patches are offered in three different doses 21 mg (30 cm²), 14 mg (20 cm²), and 7 mg (10 cm²).

Spontaneous Pneumothorax (SP). A partial or complete collapse of the lung (see Smit, 1999).

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